UNIVERSITI TEKNOLOGI MARA

EVALUATION OF THE CURRENT PRACTICES AND EFFECTIVENESS OF EMPIRIC ANTIBIOTIC THERAPY IN NEONATES SUSPECTED OF EARLY ONSET SEPSIS IN THREE TERTIARY HOSPITALS

NAZEDAH BINTI AIN @ IBRAHIM

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of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rule and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Nazedah Bt Ain @ Ibrahim
Student I.D. No.	:	2011435098
Programme	:	Master of Science (Clinical Pharmacy)
Faculty	:	Pharmacy
Thesis Title	:	Evaluation of the Current Practices and Effectiveness of Empiric Antibiotic Therapy in Neonates Suspected of Early Onset Sepsis in Three Tertiary Hospitals
Signature of Student	:	.....
Date	:	April 2015

ABSTRACT

This is a retrospective study conducted in three Malaysian General Hospitals to describe the current practices and effectiveness of empirical antibiotic therapy for suspected early onset sepsis (EOS). Records of neonate patients admitted within 72 hr of life and prescribed with empiric antibiotic therapy were reviewed. 899 cases met the inclusion criteria. Cases were divided into gestational age (GA) and birth weight (BW). GA is further divided into premature (<37 weeks) and term (≥37 weeks). BW is similarly divided into those weighing <2.5 kg (low birth weight, LBW) and ≥2.5 kg (normal birth weight, NBW) groups. More than 80% of neonates had respiratory symptoms during admission. However, there were significant differences in diagnosis among GA and BW groups ($p = 0.001$). 60% of suspected EOS cases were premature neonates and LBW and they were mainly diagnosed for respiratory distress syndrome, congenital pneumonia and presumed sepsis. Majority of them were born to mothers exposed to antibiotic (s) and steroid during pregnancy. Many of these mothers also had prolong rupture of membrane > 18 h ($p > 0.05$). Premature and LBW neonates also required longer hospital stay, ventilator support and surfactant administration ($p < 0.05$). Term and NBW neonates were mainly diagnosed with congenital pneumonia, presumed sepsis, meconium aspirate syndrome and hypoxic ischemic encephalopathy. These observation were consistent with the high incidence of perinatal asphyxia and fit symptoms ($p < 0.05$). National Antibiotic Guidelines (NAG) 2008 recommendations for empirical therapy in the management of suspected EOS were practices in all three hospitals. Penicillin plus gentamicin regimen was the standard therapy for all studied groups. This combination was started within 24 h of life and the mean treatment's duration being less than 4 days. However, there were slight variation in the doses of gentamicin and penicillin prescribed. Overall incidence of proven sepsis was 3.67% ($n = 33$) and 70% was gram positive organism such as coagulase negative staphylococcus (CoNS) and Group B Streptococcus (GBS). The observed successful rates for the three hospitals were between 89 - 95%. This study showed that the NAG 2008 empiric antibiotic therapy recommendations for the management of suspected EOS treatment for all hospitalized neonates is still effective and valid.

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